AVIATION

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Airplane View of Washington Square, New York City

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SPECIAL FEATURES

AN INTERESTING BRITISH EXPERIMENT

POSSIBILITIES OF THE AERIAL FISH PATROL

THE DOMINANT FACTOR IN AIR TRANSPORTATION

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AVIATION

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Closer Cooperation and Less Duplication

FOR several years AVIATION has been favoring a closer relationship between the Army and Navy Air Services. It has seen a rivalry, not to say competition, between the services which might be a welcome sign in competitive business but which has, it has been evident, been very costly to the taxpayer. Whenever the subject was mentioned, the work of the Joint Army and Navy Aeronautical Board was taken into consideration and while it is true that this group has given a common meeting table the results of its efforts here not been in any way satisfactory to those who believe that much greater coordination and consolidation could be effected with a great saving in money, effort and ability.

The announcement of the Secretaries of War and the Navy that there would be an increased effort to eliminate duplication of functions and facilities is a most welcome sign of a tendency in the right direction. This most important statement which confirms the contention of AVIATION that there has been too much competition and duplication is as follows:

"A new policy to govern the aviation activities of the Army and Navy has just been approved by the heads of the two establishments. Embodied in it is a revised precept for the guidance of the Joint Aeronautical Board. The plan was devised to prevent duplication of effort and to secure a more complete cooperation and coordination in the development and employment of the two services.

"The Joint Aeronautical Board is charged with the duty of formulating all joint Army and Navy aircraft problems to be carried out each year. Further, the Chief of Army Air Service and the Chief of the Navy Bureau of Aeronautics are directed to submit to the board all questions which jointly concern the two aviation services. It is provided that, whenever possible, training, repair and other aviation facilities of either will be made available for the use of the other service.

"The board is directed to investigate, study and report upon all questions affecting the development of aviation in both services. It is also charged with the duty of originating the consideration of such subjects, when, in its judgment, it is necessary, and of recommending whatever it considers essential to establish sufficiency and efficiency of coordination effort."

Secretary Weeks and Wilbur say frankly:

"The development of new type of aircraft, aircraft motors and aircraft necessories, or of weapons to be used from aircraft, will, so far as possible, be assigned to the Army or Navy, and shall be carried on only by the service to which assigned.

"This restriction will not prevent the employment by either the Army or the Navy of any type of aircraft or weapons which, after development, are considered to be necessary for the accomplishment of its function. Questions relating to the development of new type of aircraft, aircraft motors and accessories, or weapons to be used from aircraft, will be referred to the Aeronautical Board for recommendation as to whether the Army or Navy shall be charged with the development."

The Board is specifically ordered to prepare claims to prevent competition in the procurement of material. As far as possible the Air Services are to share air stations. The board is also to take cognizance of the issuing of licenses to civilians to operate aircraft in time of War.

It is not without a certain feeling of satisfaction that AVIATION can look back upon the last eight years and review the editorial position that America's oldest aeronautical paper occupies. It is pleasing to note that in all cases it has, despite criticism and, in some cases, denial of its statements, been finally confirmed in its stand.

The next great step forward should be a consolidated aircraft budget of the government, if our experience in making predictions has any value.

The Flight of Maughan

THE Dawn to Dusk flight of Lieut. Russell L. Maughan marks perhaps the culminating effort of our Air Services in cross-country flying. This is not said with the idea that Maughan's flight represents the extreme limit of the airplane's cross country possibilities. But now that the coast to coast trip has been accomplished, largely through Maughan's dogged persistence, the natural procedure will be to make this feat a portion of regular Air Service routine work, just as the long distance flights of the past have been incorporated into Service activities.

Two outstanding achievements, it seems to us, have resulted from this flight, one of which has generally been overlooked. The endurance, skill and pluck of Lieutenant Maughan have been stressed by the newspapers in proper recognition of his superlative performance. But the plane and the engine, and their constructors have almost been overlooked in the praise. The Curtiss Company has devoted several years to the development, at its own expense, of an original pursuit ship. Participation in the Pulitzer races was part of this process. Maughan's plane was the first of twenty-five pursuit ships now on order for the Air Service, except that it had extra gasoline tanks.

That the Curtiss Company has produced the fastest and most powerful pursuit ship in the world is acknowledged in foreign countries as well as by our government. Too great praise cannot be given to the methodical efforts the Curtiss engineers have made to incorporate in this premier fighting airplane all the refinements of design and construction that intensive research has found practicable. Along with the praise given to Maughan, which has been so genuine and deserved, the Curtiss achievement should be recognized as a great step forward in our aerial defense equipment.

The Dominant Factor in Air Transportation

By DWIGHT HUNTINGTON

Much information is available concerning the design and construction of commercial aircraft and records made by special types, the Pulitzer racers for example, are of great value as indicating what the future holds in store. But what most concerns the commercial world today is the *effective speed* that can be attained by aircraft on *regular schedules*.

It has been pointed out that air lines, operating from out-of-town fields, are under the double handicap of lost time and increased operating expense. Another point worth remembering is that the more important the centers, generally speaking, the faster the rail schedules between them and the more distant the flying fields.

Some Mistaken Notions

One finds rather mistaken notions prevalent concerning the relative speeds and ranges of usefulness of airplanes and dirigibles as compared with railroads, it being often assumed that the plane is better than the others for distances up to say 500 mi., and that thereafter the gas bag is to be preferred. The accompanying chart compares in a simple manner the effective speeds of the three types of carriers. Rail times over fourteen routes, connecting nine important centers were noted and then an approximation made that fixed the average effective train speed at 35 mi /hr. The dirigible is assumed to operate from city masts at a speed of 70 mi /hr., or twice the train speed. In the case of the plane an allowance of one hour at each end of the trip is made to take care of terminal losses and a cruising speed of 100 mi./hr. is assumed.

It will be observed that even for a distance of 250 mi., the saving afforded by the airplane over the train time is hardly great enough to offset the greater expense and inconvenience attached to the former. At a distance of 450 mi the plane shows a saving of 50 per cent of the train time. However, all this while the dirigible is superior to both plane and train and the apparent advantage of the plane after the 500 mi mark is passed, is reduced by the probability of a stop for refueling, so that it may be safely assumed at present that for all distances the dirigible is more favored than, or at least as much as, the plane, when the former operates from city masts and the latter from outlying fields at the speeds noted. The dirigible may safely count upon any distance as shown, but large load capacity apposed by somewhat limited pay loads available to start with, seems to presage the operation of dirigibles over the longer distances.

Incidentally, a complete diagram of this sort can indicate where the first middle-distance plane lines are likely to be operated. Let us assume that a promoter planned to operate a plane or two from Buffalo. The probable off bend first choice would be to New York City with a saving of 4 hr from the train schedule. Further investigation indicates however, that a higher load efficiency could probably be obtained over a similar distance, from Buffalo to Washington, D. C., where a reduction of over 10 hr., or about 70 per cent of the rail schedule, is possible.

The Question of Distances

This fact is mentioned merely to illustrate the feasibility of operating over-land air lines at present, with a comparatively small outlay for equipment, by taking advantage of exceptional conditions, as is the case in the London Paris and Detroit-Cleveland routes. But what is most important today is the bringing about of conditions that will permit of the operation of all classes of commercial aircraft over all distances—the shorter the better.

The first important conclusion to be drawn is that airplanes cannot be expected to operate on regular schedules from fields over distances less than 250 mi., and then mainly under exceptional conditions.

Here a second consideration appears. Utility, in commercial aircraft, consists in ability to transport express, passengers, mail and bank clearings at a worth-while saving in time over other systems traversing the same routes. But will such traffic be forthcoming on a large scale, to a really profitable degree, over a distance of say 500 mi. that the plane will cover in 7 hr. total, while the train makes the distance from the end of one business day to the beginning of another? Probably not, for the greater reliability of the train to start with may be counted upon to dampen any well-meaning attempt to throw business to the plane except as before, in unusual circumstances.

We arrive then at a position at variance with most past assumptions regarding the supposed inability of airplanes to operate over long distances, when, as a matter of fact, conditions foreign to themselves prohibit at present their operation over comparatively short distances. No man will be apt to break into a business day to travel by air when he can save useful hours by taking a sleeping car. Quite obviously, if the airplane is to enter into immediate competition with fast trains, the solution of the matter lies in the development of airplanes that can traverse distances of from 500 to 1000 mi at night, non-stop or with one stop, and later by refueling under way. The requirement for the present commercial carrier, then, is long range reliability, which cannot mean other than three or more power units, large stowage and passenger capacities making possible sleeping accommodations, dining service and all conveniences.

Importance of Frequent Schedules

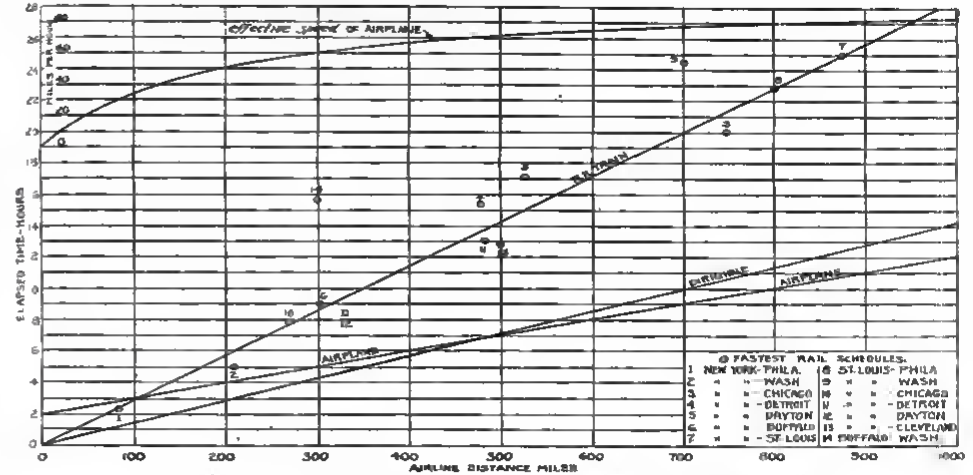
It is evident from the foregoing that of the three types of air line propositions—dirigible, multi and single engined planes—the first two seem to promise the best immediate returns on investments. Assuming again that after the 500 mi mark is passed the plane can stop for refueling and still equal the dirigible time, we find the matter of choice, in the absence of lengthy detailed comparison, largely a matter of investment.

Since time saving is the reason for air transportation, and the two types seem quite evenly matched at present as far as effective speed is concerned, we may next examine that which is akin to fast travel—frequent schedules. Obviously the investment required to produce, maintain and operate a large dirigible, with masts, gas containers and so on, will be sufficient to place a small fleet of planes in operation over the same route with the assurance of higher load efficiencies as a result. The superior wind fighting ability of the large planes is a point in their favor as is also the relative detrimental influence of headwinds as affecting the schedules. And as speed is the mainstay and purpose of aviation, it is quite possible that once designers turn their attention seriously to the development of planes that can fulfill present requirements, that dirigible promoters will begin to feel crowded, if as appears likely, it is found easier to make the airplane mechanically reliable than the dirigible economically fast.

But plane designers may well take a leaf from the dirigible records and study development of planes capable of covering long distances at night, affording all modern conveniences to travelers and including airway mail clerks' quarters, planes of simple, weatherproof construction, permitting rapid turnabout or long percentage of operating time and obviating the necessity for a large hangar at each terminal.

Commercial Transport Classification

Surveying the present variety of air transport designs one is impressed with the apparent lack of classification. It would seem though that the single-engined types are in reality overgrown taxis and multi-motored jobs the forerunners of the middle distance planes and air busses. Further consideration along this line points to the evolution of three separate and distinct classes of commercial planes, operating on schedules, distance being the governing factor.



Graph showing commercial efficiency of the airplane and the airship as compared to the railroad

Listed in the order of their probable appearance in numbers, they are:—

1. Long distance, 500-1000 mi. Large ships as before mentioned.
2. Middle distance, 250-500 mi. Mainly used at first over special lines, and later on as supplemental to class 1. For cargoes and passengers, (chair only).
   Short distance, up to 250 mi. Small planes of relatively large cubic capacity to permit maximum number of passengers or amount of cargo over very short distances. (This type will be really useful only after city terminals are provided, linking same with outlying suburbs and nearby towns and cities.)

Since it has been maintained that the second type or middle distance plane can at present operate from field terminals over exceptional routes only, let us consider what speed this type must attain before it may compete successfully with the train.

Supposing one of the several railroads that operate between New York and Washington, D. C., were to announce that a very fast train would be placed in service that would reduce the time between the two cities by 50 per cent. People everywhere would sit up and take notice and many would plan the trip for the experience alone. Supposing again that an aircraft organization blazoned forth with a well supported statement that effective on a certain date a 400 mi /hr plane would commence operations between Curtiss and Bolling fields. Again there would be plenty of free advertising. Yet that is just what halving the present rail schedule would mean—400 mi /hr from the fields, the air time in this case being only about 20 per cent of the total elapsed time. Operating from city terminals the 100mi /hr plane can accomplish the same result. Comment is superfluous.

Developing Air Terminals

The question naturally arises as to which policy is best under the circumstances—planning large scale improvements for the fields, or urging further expenditures for city terminal development.

The recent announcement of the large expenditure (£1,250,000), to be used in improving Croydon airport (London) may be taken as an example. As far as communication with the continent is concerned it is of course justified by the presence of the channel, for domestic transportation it does not appear so and the same applies to American cities. A hard surfaced landing ground will certainly lessen the dangers in landing, at the same time permitting of simpler undercarriage design on reliable planes. The yearly amount involved in pushing the ten wheeled Barling chassis on regular schedule between New York and St. Louis would be quite an item. In spite of this, however, it appears that more can be gained by planning the use of fields practically in their present conditions, with long distance ships, at the same time educating the public to the tremendous superiority of city air terminals and urging their immediate consideration and development. There can be little doubt but that were one of these in existence today, it would soon be crowded with small carriers.

The question may be raised as to whether such a terminal is justified in the present status of the industry, with the possibility in mind of improvements in aircraft as far as landing area is required. The writer is very optimistic in the latter respect, but shorter landing and take-off runs and faster initial climbing speeds will certainly be accompanied by—in fact hasten—increased traffic and larger planes. For that reason the terminal may be expected to increase gradually in size and never to become obsolete. Moreover its provision may be calculated to give tremendous impetus to the industry by bringing it before all large communities. Emphasis should be placed on the fact that the city air terminal alone can place the stamp of real utility on small aircraft—those used for commuting and pleasure, air taxis, busses and trucks, as well as the middle distance types.

There is a best location for a city air terminal in every large community, and in many it is quite possible that at this moment buildings are being planned in those areas. Does it not seem more logical then to agitate for a general showdown in every city with a view to pointing out the advantages to be gained by influencing present construction plans as far as possible. Those cities which act promptly in the matter will save considerable sums, at the same time attracting the first lines and commercial, large-scale factories.

The city air terminal is admittedly a gigantic proposition—*commensurate with the proportions of the coming industry.*

Possibilities of the Aerial Fish Patrol

Experiments Have Demonstrated Commercial Value of this Work

By ERNEST L. JONES

Unless some enterprising manufacturer of aircraft follows up the introduction of the airplane already made to the piscatorial population by the Bureau of Fisheries of this government and by the Department of Marine and Fisheries of the Canadian government, the finny denizens of the deep will continue to enjoy their present chance of escaping the net.

At any rate, it isn't the fault of the government that the fishery, it is believed that the use of aircraft would save much time in locating the fish upon their first appearance and in enabling the fishermen to keep in touch with the fish as they appeared further north."

In January of 1920 the Bureau of Fisheries again took up the subject with the Bureau of Aeronautics of the Navy and the eastern menhaden fishermen showed constructive interest

Photo Rodel & Herbert

Fishing from a seaplane is a popular sport on the West Coast. The above party is engaged in catching some of the fish they sighted from an altitude of 500 ft.

catch of schooling fish isn't greater than it is or that the price of fish meat is not lower.

Fish Spotting Experiments

W. W. Welsh is the Columbus of the air fisheries, for it was he, with the Bureau of Fisheries for a Ferdinand and the Naval Air Service for an Isabella, who took the air first from the Navy's station at Cape May, N. J., on July 28, 1919, as the result of study of aircraft undertaken in April by the Bureau, after consultations between the Departments of the Navy and Commerce.

"From the shore and from the ocean pier there were no indications of menhaden schools in the vicinity. The water was quite green and rather thick."

But they could be seen from the airplane, even at great depths.

"In no other way can such a clear idea be obtained of the abundance or scarcity of fish of schooling species. The location and extent of nets, number and position of fishing craft, and many other things relating to the fisheries, can be thus accurately observed in a mere fraction of the time that would be required in any other way."

In concluding his observations Mr. Welsh said:

"The most evident opportunity for the practical use of aircraft in the commercial fisheries lies in their employment as scouts for the purse-seine fishermen, in the pursuit of such species of menhaden, mackerel, bluefish, bluebacks, lyacks and other schooling fish. In the case of the spring mackerel when the commandant of the Fifth Naval District detailed two Navy seaplanes, with pilots, the fishing companies providing observers familiar with the species.

The fishing areas in Chesapeake Bay and along the coast were blocked off into lettered sections and numbered subdivisions. The information was first communicated to the fishing vessels by signal flags suspended from the plane. Later on a radio operator was added to the plane and he communicated with the radio of two vessels of a fishing company and with a shore station. Boats were directed to bodies of fish which were within several miles of them but of which they had no knowledge. Other boats were found traveling in opposite direction to that of the movement of the fish, but the air intelligence changed the situation. When schooling fish were found, the vessels were notified and large catches were made by all.

Commercial Value Fully Shown

Daily patrols were continued from June 14 to Oct. 1, when the Navy Department abandoned the demonstration on the ground that the commercial fishing value of planes had been fully shown.

While the Atlantic Coast was being considered for the fishermen of the East, the Naval Air Station at San Diego, Calif., began working for a short while on Dec. 15, 1919. Here the service was installed for the benefit of the tuna fishermen; and it was found also of value in locating schools of sardines which, originally, do not come in cans at all.

Radio was used from the plane through subchasers to the Naval Air Station and thence to the canneries.

In 1920 the experiments on the western coast were again followed up at San Pedro. This year the process was shortened by the plane's seeking out the fishing fleet and dropping marked charts or messages in bottles. Good hauls were secured. In these, a seaplane was leased and later purchased by a San Pedro fishing company. But the success was so overwhelming the company has already quit business.

A Navy airship, the B1S, was also employed in one flight made by A. L. Manahan of the state commission.

Fish Patrol Practical in Canada

During 1923 the Canadian government became interested and advantage was taken of the presence of a seaplane at Prince Rupert and in July experiments were conducted along somewhat the same lines as those in the United States. In all 69 hr. were consumed on fisheries patrol and the experience was of real value. Not only did it show that the aircraft is capable of producing "increased efficiency at reduced cost" but it is a simple matter to discover violations of the fishery regulations—fishing with long gill nets, fishing inside prohibited areas and fishing during closed periods. The flight officer reports the offense to the patrol boat and the offender is apprehended or he may put a member of the seaplane's crew on board the vessel and have it picked up later by the patrol boat.

The moral effect has been shown to be of splendid value, says J. A. Motherwell, Chief Inspector of Fisheries, to the correspondent of AVIATION. "The fisherman never knew at what moment the airplane may swoop down on them and, in fact, to a lawbreaker every bird in the air is looked upon with suspicion."

In 1924 it is the intention to extend the Canadian operations by including photography of certain of the important spawning areas which can be done at little expense compared with the cost of sending in crews to difficult and often practically inaccessible areas.

What the Fishery Airplane Proved

Summed up, all these experiments showed to the satisfaction of everyone that the airplane could locate and advise the presence of schooling fish in the minimum of time and with the saving of fuel, permitting the fishing vessels to remain at their docks in the meantime, could find fish that were invisible from the crosstrees; could follow the general movement of schools; could distinguish between various species, could estimate the quantity of fish in the schools, permitting concentration of effort on large schools instead of wasting time on scattered bunches of fish; that one airplane would serve an entire group of fishing companies in one area.

However, it isn't merely a matter of sending a catalogue at present-day airplanes. The fishermen don't need high-powered, high priced, speedy airplanes that demand an experienced pilot, a trained observer and a radio operator and they can't afford it, either. They want a machine of around a hundred horsepower, more or less inherently stable, that most anybody can fly, so that the fish expert himself can operate it, observe and do the signalling. Here is another opportunity for the aeronautical industry to show its skill in building aircraft for commercial uses.

An Interesting Experiment

The recent disappearance with its occupants of one of the Royal Dutch Air Line's passenger monoplanes in the English Channel has given much timeliness to an experiment just carried out by the British Air Ministry in Harwich Harbor to find out whether a land machine which is forced to alight on water would float long enough to permit of rescuing its occupants.

The machine used was an old DH18 with Napier Lion engine, a type used a couple of years ago on the London-Paris services in which the pilot is seated well aft of the passenger cabin. The machine carried ballast representing the average load of passengers.

The pilot, Flight Lieutenant Rhea came in low over the jetty at Felixstowe and made what on solid ground would have been a good three-point landing. On striking the water, the landing gear set up a drag which threw the machine onto its nose in what looked like a straight dive. The bottom wings were entirely submerged and the top wings went under water up to the rear spars. In a moment or two the plane emerged again and settled with the leading edge of the top wing under the water and the trailing edge of the bottom wing above the water, the fuselage being at an angle of about 45 deg.

As the machine plunged, the pilot was nearly thrown over the edge of the cockpit. If it had been a DH34—the type now used on the cross-Channel services, where the pilot sits in front of the cabin—he would have gone clear under the water and would have had some difficulty in extricating himself. In the experiment, however, the pilot waited till the machine had adjusted itself before he left the cockpit, and put into it some ballast brought out by a motor boat to replace his weight. The plane then settled at an angle of 30 deg., possibly owing to some air escaping from the trailing edge of the bottom wings. The engine was completely under water.

For some 15 min. there was no marked tendency to sink, but thereafter the loss of buoyancy was noticeable, and after 25 min. the water was in the pilot's cockpit. A boat then took the plane in tow to prevent it from drifting out with the tide.

In relating this experiment, *The Aeroplane* suggests that the high landing gear of the DH18 (and of the DH34, too) is probably to blame for causing the machine to nose over right after touching water. This seems to be borne out by American experience, for more than one Army DH4B—which has a low landing gear—has made emergency landings on lakes and rivers without turning over on its nose.

Buoyancy.

A Sad Story

The sad story in question is told by the inimitable C. G. Gray, editor of *The Aeroplane* (London), as follows:

"There is a sad story which illustrates the difficulties of cordial cooperation between the Navy and the Royal Air Force. On a certain occasion a unit of the R.A.F. which specialized on Naval Cooperation was engaged in manœuvers with a portion of His Majesty's Navy. After a spell of scouting the Admiral complained to the Officer Commanding R.A.F. that the observations were futile—or words to that effect. Whereupon the O.C. Air Force changed his observers and tried again. This time the Admiral raised still more complaints about the unreliability of the observations. So once more the observers were changed. For the third and last time the Admiral damned R.A.F. observers in heaps and thereafter sent in a stinging report to the Admiralty about people who could not recognize a war-ship when they saw one, and the general hopelessness of a Service which had not been weaned on salt water and tar. And he emphasized the fact that the third lot of observers were very much worse than either of the others. At any rate that was more or less his attitude.

"The Admiralty sent the report to the Air Ministry with a more or less polite request for an explanation. And the Air Ministry passed it down to the O.C. that R.A.F. unit.

"The R.A.F. officer replied in proper official language that he was desolated, he desired to apologize in three positions, and that he admitted being guilty of a grievous error, but that seeing as how the reverend Admiral had been so upset over the two attempts of his poor little humble R.A.F. observers (who *en passant*, he remarked, had not in fact been so frightfully inaccurate) he had replaced them entirely at the third attempt with full blooded bred-in-the-bone brought-up-at-Dartmouth Naval Officers who had passed through the full Observers Course of the R.A.F. and had been appointed to his unit because of their ingrowing knowledge of everything about the Navy—judging by their normal conversation, as he himself did not profess to know much about ships as such. He was frightfully sorry and all that, but would the Admiralty please forgive him for not knowing that Naval Officers could not recognize the ships of their own Navy."

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

The A4 Light Plane

Part IV—The Wings

In reading over these notes, many will an doubt be unfavorably impressed by the very small wing area used on the A4. Most of the light planes which have been successful have had more than double the surface. An area of 76 sq. ft. with the loading of 5 lb./sq. ft. was chosen somewhat arbitrarily as the least possible area that would give the required initial climb, and a landing speed under 40 mi./hr. The safe side in light plane design is, however, in the neighborhood of 3 lb./sq. ft. especially if the power loading is as high as 38 lb./hp.

The profile chosen in this case was the Gottingen 398, a hitherto little used section, although possessing an exceptionally low power factor. Its maximum lift coefficient is 1.26. With the aspect ratio of 9½ this section should show up well in flight.

After the plan form of the wing and its area were determined, the spars were so placed with respect to the tapering leading and trailing edges as to bear equal maximum stresses. This took considerable trouble, and if it had not served to facilitate structural progress in the resultant identity of the spars, it would not have been worth while. The wing stress analysis was carried out in the orthodox manner, with a minimum factor of safety of 8 for both top and bottom loading, and for both high and low incidence condition. It is well to note in this connection that the only two light plane collapses of which one has definite record were caused by failure of the structure in top loading. The wings in both cases broke off downward when the stick was pushed forward. These accidents occurred to Maneyrol's Payret and Jack Foote's L.W.F. Butterfly. The wing bracing was similar in these machines: a semi-cantilever monoplane with long struts which were braced in their middle by shorter struts passing also to the wing. When the struts are put in compression by a reversal of loading, the short intermediate strut bows the long strut, which fails, of course, in buckling. It is not well to take any chances with top loading.

The wings are pinned to the fuselage at the top longeron, and to the struts at the fitting four feet out. These struts, ¾ in. steel tubing, slope down from the spars to a common fitting at the lower longeron, forming a V. The apex of the V is attached approximately in line with the sectors giving the worst wing stresses. The advantage of this V strut arrangement of the semi-cantilever monoplane is doubtful. A great saving in fittings and in time would have been accomplished by carrying the struts parallel to two points at the lower longeron.

Since the tapering of the wings is very slight, it was possible to keep the spars parallel, a great advantage structurally. In fact every possible use should be made, for simplicity of straight orthogonal design. It is questionable if the advantages of tapered wings justify the difficulties of their construction. Unless there is quantity production, the necessity of making some fifteen different rib jigs overweighs the desirable features. The chief reason for the use of the tapered wing on the A4 has in the lighter spars which are allowed for a given aspect ratio. It is estimated that this reduction in weight is as much as 20 per cent with pronounced taper. In this machine the four spars weigh together but 21 lb.

One other feature of the spar design is worthy of notice. There is, of course, a small bulkhead inside the spar at each rib. At the strut attachment, the large bulkhead which takes the bolt is cut away at its ends in a parabolic form, so that the deflection will not be changed suddenly at this point. The testing machine has shown a 10 per cent increase in breaking load with this precaution.

The rib construction is a departure that may prove to be of great interest for lightly loaded machines. Their web is of paper, a tough manila K&E stock that takes great shearing stress. The cap strips are glued or doped on at each side of the edges of this paper web, and then nailed through. There are vertical uprights at intervals, and at the passage of the spar through the web. A rib of this type of 48 in. chord, weighing 1.5 oz., took a uniformly varying load of 100 lb. with no sign of failure.

A full description of this type of rib can be obtained in the N.A.C.A. report of the Turkey Buzzard glider. It is for use on such lightly loaded wings that it has been designed and developed by Roy G. Miller and his associates at the Naval Aircraft Factory.

On the A4 some variation in the use of this paper web was necessary because of the compression factor. Every other rib is made of plywood strengthened further by small compression members at its sides, both at the top and bottom of the spar. Torsional bracing consists of 1 in. x 3/32 in. spruce diagonals crossing alternate ribs at both the upper and lower surfaces of the spar. All this bracing is glued and nailed, effecting the elimination of all fittings except those for the struts and the spar ends.

The leading edge of the wing is a large strip of spruce designed to protect it from rough handling on the ground. The wing tips are of oak bows bent in the form of ellipses. The wings and fuselage are covered with a thin strong cotton (unrubberized single-ply balloon fabric) weighing two ounces to the square yard.

It was found that the weight estimates on the wing were generous. The completed structure weighs but 60 lb.—6 per cent less than the allowance.

American World Flight

The three American fliers were delayed at Rangoon, Burma, by the indisposition of Lieutenant Smith. One night one of the planes drifted into a junk, damaging a wing. Repairs were completed and the planes took off for Akyab, Burma, a distance of 445 mi. on June 25. The planes made a stop at the Bassin River where they were refueled by the destroyed Preble. The British around the world flight left Akyab on the same day and flew over the Americans. On June 26 the Americans proceeded to Calcutta, India, a distance of 400 mi., a stop being made for refueling at Chittagong, Province of Bengal, India. The extra refueling stops have had to be made because the wooden pontoons have soaked up much water (estimated at 400 lb.), the heat and dampness have affected the lift of the wings and the warm tropical air is lighter. Also some of the flights have been from fresh river water which gives less buoyancy to the floats.

At Calcutta the planes will substitute wheels for the floats, change the motors and put on new wings. The planes have flown 12,000 mi. or almost half way around the world, whereas the British flight has only covered one quarter of the distance.

British World Flight

After one month's time lost at Akyab, Burma, Major Maclaren, the British world flight leader, got under way again on June 25, in his new plane, when he flew with his two companions to Rangoon, Burma.

AIRPORTS AND AIRWAYS

The Miller Field Meet

The air meet held by the 27th Division Air Service on June 28 at Miller Field, Staten Island, was a great demonstration from the aeronautical viewpoint, even though the public was rather sparse.

Some fifty ships, military as well as civilian, lined three sides of the field, furnishing a varied aggregation of aircraft. The Army Air Service had Martin Bombers, DH4's, SE5's, a Fokker CO4, a McCook CO5 and a Sperry Messenger; the Marine Corps Air Service was represented by Martin Bombers, Vought VE7's and DH4's; the civilians included five Orioles, piloted by C. S. Jones, E. P. Lott, Jim Ray, C. E. Johnson and J. P. Andrews, and the C6 Bahilla, piloted by W. L. Stultz, all ships of the Curtiss Exhibition Co.; C. R. MacMullen on an SE5a of the Skywriting Corp. of America; R. H. Depew on the new Huff Daland model 5 photo ship of Fairchild's; Carter Tiffany on an SVA of Aerial Ads Corp.; Pilot Smith on a Fokker C2 of the Brock Aerial Camera Co. who came in from Philadelphia; and George Pickenpack on a JN4D.

Six women passengers came in the Orioles, including Mrs. Casey Jones, from Curtiss Field, Garden City.

To make the aerial show complete, sea flying was represented by a Navy PN7 flying boat and a Vought UO1, as well as by the new Aeromarine sport flying boat built for Earl D. Osborn, which was piloted by Cy Zimmerman and carried beside its owner Paul J. Zimmerman, designer of the ship. There was also a Seagull piloted by Clifford Webster of the Curtiss Metropolitan Co.

Lighter-than-air activities were in evidence too, for the Shenandoah came over from Lakehurst and made three circles over the field, before proceeding to New York, and the Navy airship J1 also appeared in the skies.

Following is the list of events run off, with their winners:

Formation Flight—1st Obs. Sqn., Mitchel Field and 49th Bomb. Sqn., Aberdeen Proving Grounds tied for first place with 96.5 per cent; third, Reserve Officers, 75 per cent.

Landing to Mark—Lieut. G. T. Cuddihy, U.S.M.C., on Vought VE7 and J. P. Andrews on Oriole tied for first place with 9 yd. error (Andrews won the cup on a toss up); third, Lieutenant Stolz, 16 yd.; fourth, Lieut. C. V. Finter, 20 yd.; fifth, Lieutenant Welker, 37 yd.

Altitude Race—First Lieut. S. M. Connell, Mitchel Field, on DH4B, 12,700 ft.; second, Lieutenant Cuddihy, on VE7, 11,800 ft.; third, W. L. Stultz on civilian SVA, 11,000 ft.; fourth, Lieutenant Finter, on Fokker CO4, 8000 ft.; fifth, Lieut. O. P. Herbert, on DH4B, 7900 ft.

Seaplane Race (to Statute of Liberty and back)—First, Boatswain J. T. Sanderman, U.S.N., on Vought UO1 (Wright E4) in 17 min.; second, Lieut. L. T. Hundt, U.S.N., on PN7, 17½ min.

Ten Mile Relay Race (teams composed of two DH4's and one JNH)— First, Lieutenants Walthall and Connell from Mitchel Field, and Lieutenant McCarthy from Miller Field; second, Lieutenants Hutchison, Brady and Noble; third, Lieutenants Rogers, Miller and Witherton.

Stunt Flying—First, Lieut. M. E. Elliott, on SE5 from Mitchel Field; second, Lieutenant Cuddihy on VE7; third, Lieut. H. B. Chandler on SE5.

During this event, Air Mail Pilot Johnson crashed into the sea near the shore in an almost straight dive, his engine failing to pick up when he attempted to pull out of a dive. The pilot had a miraculous escape, for he only suffered a broken leg and a dislocated shoulder together with some minor bruises, though the ship was a total wreck. It appears that the sparkplugs of the engine were fouled by oil while the ship was flying upside down.

Fifty Mile DH Speed Race—First, Lieutenant Hutchison, 8 min. 43 sec.; second, Lieutenant Walthall, 9 min., third, Lieutenant Baez, 9 min. 23 sec.

Thirty Mile Open Speed Race—First, Lieutenant Baez, 12 min. 34 sec.; second, Lieutenant Hutchison, 12 min. 37 sec.; third, Lieutenant Walthall, 12 min. 39 sec.; fourth, Lieutenant Rogers, U.S.M.C., 12 min. 45 sec.

Parachute Jumping—First, A. J. Starr, second, L. H. Ford. Both from Lakehurst naval air station.

Bombing Contest (in teams)—First, Aberdeen Proving Grounds, on Martin Bombers, second, Miller Field, on JNH; third, Mitchel Field on DH4.

The Editor of AVIATION is indebted for his aerial transportation to Miller Field to the Curtiss Exhibition Co., and for his return flight to the Fairchild Aerial Camera Corp. The Curtiss Oriole is too popular to require any praise, but the wonderful combination of maneuverability and inherent stability embodied in the new Huff Daland photo ship of Fairchild's deserves special mention.

Preparing the Dayton Air Races

Preparations for the International Air Races, Oct. 2, 3, and 4, have gone along with unprecedented speed since the return of Frederick B. Patterson, president of the N.A.A., from his tour in Europe.

Shortly after arriving home, Mr. Patterson was elected president of International Air Races, Inc., an organization formed not for profit for the purpose of holding the Pulitzer and allied races. Charles H. Paul, manager of the races, was chosen vice-president; George B. Smith, secretary, and W. R. Craven, treasurer.

Trustees of the corporation are: Mr. Patterson, Orville Wright, Fred H. Rike, Col. Frank T. Huffman, Col. E. A. Deeds, Charles H. Paul, John C. Haswell, George B. Smith, W. R. Craven, Ezra M. Kuhns, and C. E. Burnett.

After a conference with Lieuts. A. J. Williams and H. S. Brow, the N.A.A. Contest Committee has recommended that the best colors to use on pylons at the coming International Air Races would be a checkerboard effect of red and white.

Both pilots stated that the black and yellow painted pylons used at the St. Louis races merged into a brown which could hardly be discerned against the countryside.

Satisfactory progress has been made on plans for getting all roads leading to Wilbur Wright Field in shape for the annual air classic.

Assurance that the races would receive plenty of preliminary publicity as far as they were concerned was received by Hugh W. Robertson, assistant manager. Four civic clubs, the Rotary, Kiwanis, Civitan, and Saengerbund German singing society asked for displays to take to their respective conventions this summer.

Arrangements were completed with the War Department by Congressman Roy G. Fitzgerald for having a military guard of 800 soldiers serve during the three-day meeting. Orders were transmitted to the commanding general of the fifth corps area, Fort Hayes, Columbus, Ohio, to furnish the troops without additional expense to the government.

Appropriations for the twenty other N.A.A. committees were made by the Budget Committee during the month. The figures were not made public. The Convention Committee, of which Dr. D. Frank Garland is chairman, met in furtherance of plans for the N.A.A. convention and the annual meeting of the aeronautical section of the S.A.E.

The matter of permitting pilots and mechanics from abroad to enter this country to participate in the Pulitzer and Jacques Schneider Races next fall has been taken up with the Immigration Bureau of the Department of Labor by Acting General Manager Shaw.

The foreign fliers and mechanics are expected to be in the United States for a period of from six weeks to two months.

Boston News

By Porter Adams

At about 1 a. m. eastern daylight time on Monday June 16, the Boston Herald-Traveller Westinghouse station W B Z., at Springfield, Mass., put on a special transatlantic broadcast for the benefit of the American entries in the Gordon Bennett International Balloon race which had started the previous afternoon from Brussels, Belgium.

A short history of the Gordon Bennett race was given by Porter Adams, district vice president of the National Aeronautic Association, who extended the best wishes of the Association to the American entrants, and messages of good cheer for transmission overseas were received from General Patrick, Colonel Lahm, members of the Goodyear organization, the Department of Aeronautical Engineering of the Massachusetts Institute of Technology and relatives and friends of the contestants. The Shenandoah also sent a message of good luck which was broadcast

* * *

Forty-six flights with a total of 26 hr 35 min were made by the Naval Reserve Aviation Unit under the command of Lt (j g) R. D Thomas, U.S.N.R.F., during the week ending June 14 The complement of the station consists of eight Naval Reserve Student Aviators, with two officers and four enlisted men regularly detailed to active duty, and the equipment includes three N9 Seaplanes, one Dayton Wright Amphibian, and one JNSH landplane.

* * *

The annual meeting of the Aero Club of Massachusetts was held on Tuesday, June 24, at 4 p. m. and resulted in the re-election of all officers and directors with the exception that Roger Amory of Boston was elected a director in place of Harold Jones of New Haven, whose term expired. The officers reelected are: President, Maj Charles Wooley, Vice President, Porter Adams, Secretary, Paul F. Ives, Treasurer, Maj Arthur Richmond

Plans were discussed for the erection of the Memorial Clubhouse at the Boston Airport and the Treasurer was authorized to proceed with the letting of the necessary contracts and the purchasing of the necessary material A building committee was appointed to have general supervision of the project, and it is expected that work will commence at once and that the club house will be completed in time for the reception of the World Flight when it reaches Boston

* * *

Godfrey Cabot, Governor at Large of the National Aeronautic Association, who has been making an extensive tour of South America, is expected to return to Boston some time during the middle or latter part of July

* * *

Announcement is made of the appointment of Lieut E H Holterman of Woodstock, as Governor of the N A A for the State of Vermont Lieutenant Holterman was formerly at McCook Field, and last year was an alternate in some of the races at St Louis

This completes the organization of the N A A in the First District, which is as follows

District Vice President—Porter Adams, Boston
Governor-at-large—Godfrey L. Cabot, Cambridge
State Governors—Maine: William H Gannett, Augusta
New Hampshire: Maj Frank H Knox, Manchester
Vermont: E H Holterman, Woodstock
Massachusetts: Prof E P Warner, Cambridge
Rhode Island: Comdr P N L Bellinger, Newport
Connecticut: Col L S Horner, New Haven

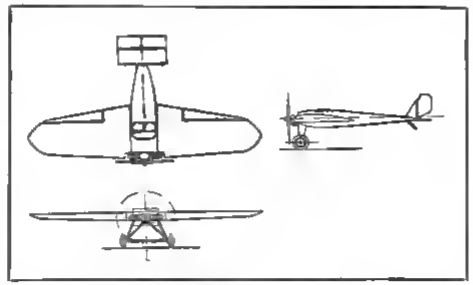
The Dixie Small Plane

An interesting type of aerial flivver has been brought out by Charles E Lay, 3727 Saybrook Ave, Cincinnati, to the designs of Harry Heasel, chief engineer of the firm

As will be seen from the accompanying outline drawings, the Dixie, as this plane is called, is a cantilever monoplane of very clean design The machine measures 20 ft in span, 14 ft. 6 in in length overall and 54 in in height The maximum chord dimension is 90 in Equipped with a 40 hp two cylinder horizontal opposed engine, the high speed is 100 mi /hr, the cruising speed 92 mi /hr and the landing speed 25 mi /hr The range is 500 mi. The ship weighs empty 280 lb and the load capacity is from 210 to 360 lb. The factor of safety is 9

The machine is guaranteed as to performance, materials and quality of workmanship. It can be furnished with or without motor, and the latter case engine installation diagrams are furnished free for any class of power plant the customer desires to install, provided it does not weigh more than 150 lb The range of power plants that can be used on this ship goes from 14 to 40 hp

The ship can also be furnished in knockdown condition,



Outline drawings of the Dixie two-seater sport plane built by C E Lay of Cincinnati

with all parts cut to fit and numbered with assembling instructions

While nothing particularly new is claimed in the Dixie, a number of well known and reliable combinations have been placed together, bringing out a little ship that fully accomplishes expectations

The 1925 Model, just tested, has a Göttingen wing curve together with a well streamlined body of an old but particularly good French design Simplicity of construction, absence of wires, struts and all exterior bracings, standard accessories throughout, entirely separate motor installation, ease of assembly and adaptability as a one or two seater characterize the new ship

Cincinnati News

By E F Marsh

Work on Grisard Field– Blue Ash, Ohio—is progressing rapidly under the able direction of Major Hoffman The hangar has been painted white, large letters of the top showing "Cincinnati Airport." Numerous obstructions have also been removed Hugh Watson, has the commercial rights for passenger flights

Purchasers of Dixie ships, which are manufactured by Charles E. Lay, commercial aeronautical engineer of this city this past week were: Ted Donnelly, Cambridge, Ohio; A C VanAelst, Goldendale, Wash., Melvin E. Culbertson, Topeka, Kan – M J. Moran, So Plainfield, N. J., Meno Manley, Addison, N Y; Elmer Nelson, Highwood, Conn.; K. Mattingly, Winter Park, Fla– and Ralph M. Miller, Pueblo, Colo.

Pilot LeRoy Davis, of Dayton, Ohio, has secured the old field at Carroll Street Turkey Bottoms, and is doing passenger advertising and exhibition work. He is equipped with two rebuilt JN4's. Two Dixies are being built for this field and will be placed in service the middle of July.

Pilot J. H Friend has secured a location on Reading Road and will open a field there for service with three converted three-place ships about July 1

Galveston Wants 1925 Races

Galveston, Tex., has been added to the list of cities interested in securing the 1925 International Air Races. An inquiry has been received at N A A national headquarters from I D McMaster, Secretary of the Galveston Chamber of Commerce, indicating that the Texas city may take active steps to compete with other localities for next year's speed classic.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

Lieut. Col James E Fechet, A S, O.C.A.S., Washington, D C, to Kelly Field, Tex.

Capt. Thomas Boland, A.S, Marshall Field, Fort Riley, Kan, to Langley Field, Va.

First Lieut Edward M Powers, A S, San Antonio A I D, Kelly Field, Tex., to San Francisco, and sail on or about July 2, 1924, for Hawaii

Capt Henry Pascale, A.S., Fairfield, Ohio, to Wilbur Wright Field, Ohio.

First Lieut. Truman Wike Allen, A.S., promoted to captain, March 26, 1924

First Lieut Sigmund F Landers, A.S., San Francisco, Calif., and sail on or about Oct. 15, 1924, for Manila, P I

Capt. Henry C White, A S, Cleveland, Ohio, to Little Rock, Ark.

First Lieut Charles H. Dowman, A.S Chanute Field to A.S. Panama Canal Department, by transport sailing New York July 10

Sec. Lieut Ernest Byron Thompson, A S Brooks Field, transferred to Coast Art C Fort Barrancas, Fla.

Capt. Calvin E Giffin, A.S., Kelly Field, to Honolulu, sailing San Francisco, Oct 18.

Capt Clarence I. Mideap, A S retired by Army Retiring Board account disability incident to active service

First Lieut Joseph T Morris, A S., from duty at Sheffield Scientific School, Yale University, and from further assignment and duty at Chanute Field, to Langley Field, upon completion of present instruction

Lieut. Col William E. Gilmore, A S., Ninth Corps Area, sailing San Francisco Aug 21, to New York City, for O.C.A.S., Washington

Maj. Archie W. Barry, A S, Scott Field, to Little Rock, air intermediate depot

Sec. Lieut. Charles F Beattie, A S. (Inf.), Brooks Field, to Second Div Fort Sam Houston.

Orders May 15, First Lieut John H. Stokes, jr A.S amended to read Ordnance Dept (Inf.)

Orders May 13, Capt Otto G. Trunk, A.S amended to relieve Captain Trunk from assignment and duty Fourth Corps Area, Atlanta, effective arrival Lieut Col. Charles H Danforth A S

Sec Lieut Alexander George, A S (Cav.), from Air Service Primary Flying School, Brooks Field, upon expiration of leave of absence, to 3rd Cav., Fort Meyer, Va

Lieut Col. Charles Hart Danforth, Inf. transferred to A S May 22nd, with rank July 1, 1920

Captain Eaker Leaves Mitchel Field

At a farewell dinner and bridge at the Officer's Club at Mitchel Field, N Y, Capt and Mrs. Ira C Eaker, A S, entertained twenty couples on the evening of May 31 Among the guests were Maj and Mrs C L Chase, M C, parents of Mrs Eaker

Captain Eaker has been at Mitchel Field for two years and for over a year served as Adjutant at the Post Recently he has completed a course in contract law at Columbia University. Captain Eaker has been ordered to duty in the Office of the Chief of Air Service at Washington

New Designation of Flying Field

The War Department has designated the flying field at Fort Crook, Nebr., as "Offutt Field" in honor of First Lieut Jarvis Janness Offutt, A S, who died on Aug 11, 1918, from injuries received on same date while flying at Valheureux, France, and attached to the 56th Squadron, Royal Air Force

Retirement of Master Sergeant Sauers

Completing the allotted thirty years' service, Master Sergeant Birdie E Sauers, A S, stationed at Kelly Field, San Antonio, Tex., was placed on the retirement list on May 30 last. Sergeant Sauers served actually 26 years, five months and three days, but due to foreign service received credit for three years, seven months and twenty days double time, making a total of 30 years and twenty-three days. During this period of service he was a non-commissioned officer for twenty-one years and, in addition, held a commission as Captain of Field Artillery for two years during the late war.

First enlisting with the old light Battery F, 2nd Field Artillery, Sept. 1, 1896, Sergeant Sauers served continuously with the U. S. Marine Corps, 1st Field Artillery, 6th Field Artillery, School of Fire, Fort Sill, Okla., Quartermaster Corps, Air Service School at Post Field, Fort Sill, and with his last organization, the 43rd School Squadron at Kelly Field. This soldier possesses eight discharges, all of which read "Character Excellent," which bears out the fact that he was held in high esteem by all of his superiors.

His loyalty, attention to duty and his integrity throughout his service, together with his excellent record, should be an inspiration and an example for all of us.

U. S. NAVAL AVIATION

Naval Air Orders

Lieut. John H Campman, det Aircraft Sqn, Battle Fleet; to Naval Air Sta, San Diego, Calif involving flying

Lt. (jg) Frederick W Roberts, det Torp and Bombing Plane Sqn I Aircraft Sqns. Scting Fleet; to U S S Concord involving flying

Lt. Comdr Arthur H Eddins, (SC), det. Naval Operating Base, Key West, Fla. to U S S Langley.

Lt (jg) Richard A Vollbrecht (SC), det. Naval Air Sta., Anacostia, D C.; to Torp and Bombing Plane Sqn., Aircraft Sqn. Scting Flt.

Movements of Aircraft Carriers

The aircraft carrier Langley, instead of going around to the West Coast on July 1, will sail instead on Nov 1

CALENDAR OF AERONAUTICAL EVENTS

March 25	Start of the British World Flight, Southampton, England.
April 6	Start of World Flight of the U. S Army Air Service, Seattle.
July 5-6	Zenith International Airplane Efficiency Race, Paris, France.
July 28	National Guard Air Meet, Miller Field, New Dorp, S I., N. Y.
August.	"Tour de France des Avionnettes." International Round-France race for light airplanes.
Oct 2-4	International Air Races, incl Pulitzer Trophy Race, Dayton, Ohio.
Oct. 24-25	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight

Four Seaplane Records Broken

Four world seaplane records were broken on the night of June 22-23 in a Navy-Curtiss CS2 plane with Wright T3 engine which was alternately piloted by Lieut. John D Price, U S N of the naval air station at Anacostia D C and Lieut F W. Wead, U S N. of the Bureau of Naval Aeronautics. The two pilots were in the air for 13 hr 23 min, and on two occasions in the course of the flight they changed seats.

The distance covered in 13 hr 23 min, 1550 km. (963 mi.) breaks the record made at San Diego last year by a Douglas torpedo plane which covered 1275 km in 11 hr 18 min

In addition, Lieutenants Price and Wead broke the speed record for both the 500 and 1,000 km distances, with an average of 73 41 mi /hr against the record of 72 for the first and 74 27 mi /hr against the record of 70 49 for the second. Moreover, the two naval officers made up a new 1,500 km speed record of 74 17 mi /hr.

Price and Wead left the water between the air station and Alexandria, Va, at 12 10 p m on June 22. They carried 620 gal of gasoline. Throughout the night the roar of the powerful Wright motor could be heard in Washington and vicinity. The small navigating lights on the upper wings were visible and searchlights played across the water

Shortly after 1 o'clock in the morning, when Lieutenant Price took the controls from Lieutenant Wead, and the plane was beginning a new lap the motor "cut out" and forced the pilot to make a landing

The darkness below was relieved only by lights on a barge anchored off Alexandria, Va., and it was for them that Lieutenant Price nosed the plane. Without any wing headlights to flash upon the water Lieutenant Price brought the huge plane safely to the surface

The Navy Department's investigation of the cause of the landing revealed that the flow of fuel to the engine was stopped. This was probably due to the failure of a fan driven pump on the wing of the plane which is used to force gasoline from an auxiliary tank. This has nothing to do with the engine, except to help supply it with gasoline when the main tank is empty The Navy investigation also revealed that the engine was in perfect condition and could have remained in the air as long as the gas supply lasted

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OX5 STANDARDS — $575.00

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Complete Jenny fuselage, new linen, $75. OX5 motor with propeller, $135. Upper left wing, $25. Complete tail assembly, $25. Ailerons, $10. Wing struts, $1. Bosch Booster magneto, $10. Zenith carburetor, $10. D. F. Shinn, Elgin, Kansas.

WANTED to buy Laird-Swallow, good one, slightly cracked, write best price and condition. L. Ensminger, 317 So. Sycamore, North Platte, Neb.

FOR SALE. 39 B. Aeronarine, land or seaplane. Have landing gear and pontoon. A present three-place land plane, less than 10 hours. Will demonstrate near Boston. $1000.00. Box 293, Aviation.

Pilot wants position. Fly all types. Flown in fifteen states. Seven years flying experience. Two years overseas. Has good resort proposition for owner of Waco. Walter J. Shaffer, Dauphin, Pa.

WANTED—Aeronautical engineer, also men who want to learn aviation from actual experience in shops. Those who can qualify will be given positions in our shops. We build all metal variable camber airplanes, the last word in airplane design. Don't come, write for particulars. This is not a school. Address: International Airways, Ltd., 1 Ouellette Ave., Windsor, Ontario.

PUBLISHER'S NEWS LETTER

The opening of the through service of the Air Mail this week marks the rounding of another pylon in the progress of world aeronautics. American aviation has had to watch with envious eyes the growth of the European air routes under governmental subsidies. But when forced to explain why the United States lagged behind, the work of the Air Mail has always afforded a convenient retreat to use to rest secure from criticism. It is the one great contribution that we have made to the world's commercial aviation and its real possibilities have probably yet to be interpreted in international terms.

Entirely aside from the value of the night flying in its air mail utilization, it will be evident what it will do for aeronautics all over the world. More and more, nighttime is coming to have a value in commerce which is directly related to the movement of goods and the exchange of communication. The day is the time of preparation, the night the period of movement. So, when the experimental stage of night flying has been reduced to ordinary practice, we think it is safe to predict that the airplane may then come into its own as a commercial carrier that can compete in service as well as excel in speed the present transportation methods.

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Occasionally, a visitor to the office brings a touch of color to the otherwise drab routine of publishing activities. Such a visit was made last week by "General" Dean I. Lamb, who during the war contributed so many interesting articles on military aeronautics to our *Aircraft Journal* which was later merged with AVIATION. Lamb is a real Soldier of Fortune of the Air. His latest exploits in Central and South America are as romantic as Richard Harding Davis' fiction. Not only has he fought in the air for the government but he has, when things were dull, joined the Revolutionists and gained more thrills. Lamb, it may be interesting to recall, was one of the Americans who joined the British Royal Air Force during the war and became an Ace, having eight official victories to his credit. When the war was over, Lamb sought new fields for his flying skill and having had experience in Mexico and Central America he spent four years there, only returning home last week with his moving picture "Generals" "Colonels" and other titles tacked on to his perfectly good record.

* * * *

Lamb's soldier of fortune quest has flown him in Guatemala, Salvador, Honduras, Nicaragua, Costa Rica, Panama, Ecuador, Peru, the Argentine and Brazil. He was the whole air force of Honduras for a time, dropping on the incipient revolutionists bombs where they could do the most good. Once a report was circulated that he was releasing 1000 pound gas bombs when as a matter of fact they were little 20 pound Hales. Natives, frightened into the belief that they had been gassed rather than scared went to the hospitals for treatment. When asked how many revolutionary disorders he took part in, Lamb naively replied that he didn't carry an adding machine, but revolutions averaged about one every four months.

In 1921 he made the first flight across Central America from San Pedro Sula to Tegucigalpa, the capital of Honduras. It took him an hour and twenty-three minutes, most of the time being spent in climbing over the range of mountains of 11,000 feet altitude.

* * * *

He flew a Bristol Fighter with a 300 Hisso in the revolution in Nicaragua. Dressed as a bare footed peon he tried to "capture" one of the government planes, but was only able to deprive them of a machine gun. In the battle of Poncho Verde in Rio Grende do Sul between the revolutionists and the state troops he commanded the machine gun outfit, receiving a souvenir in the thigh. One time he came near selling a seaplane to a sportsman who wanted to use it on Lake Titicaca, which lies at an elevation of 12,000 feet. But rising from a lake at this heighth was probably more than he thought was even practicable. It is refreshing to hear of these experiences which we usually only believe are portrayed in the movies or in fiction.—L.D.G.


THROUGH the entire history of aviation over a period of 20 years the Wright organization has maintained its high position.
Its leadership has been soundly built upon extensive research and intelligent engineering development, although its experience includes the manufacture of aeronautical equipment in extremely large quantities.
The Wright organization, ever mindful of its first achievement—the art of flying—continues to contribute each year its best ability and engineering experience to the advancement of flying.
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